

Figure 1

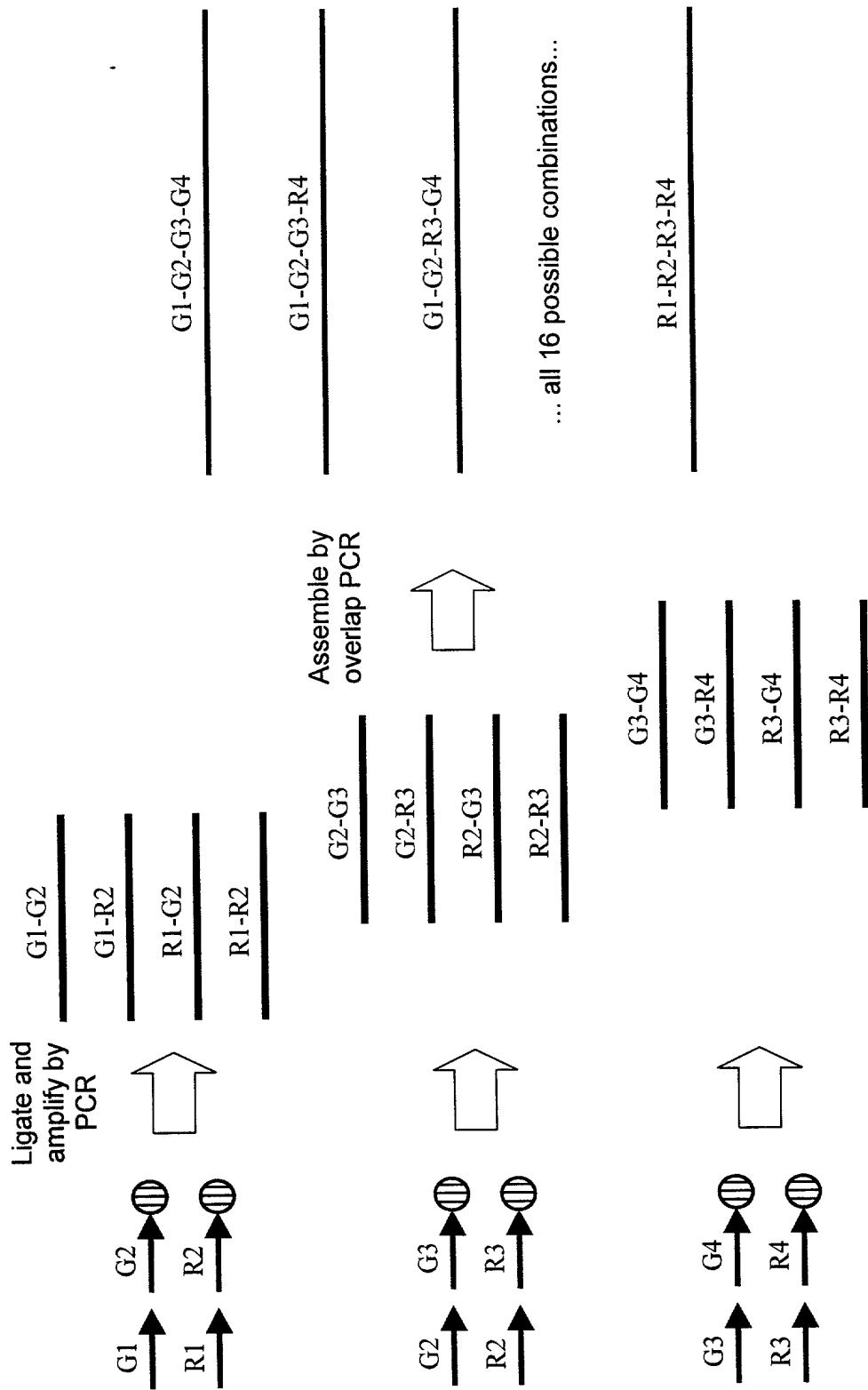


Figure 2

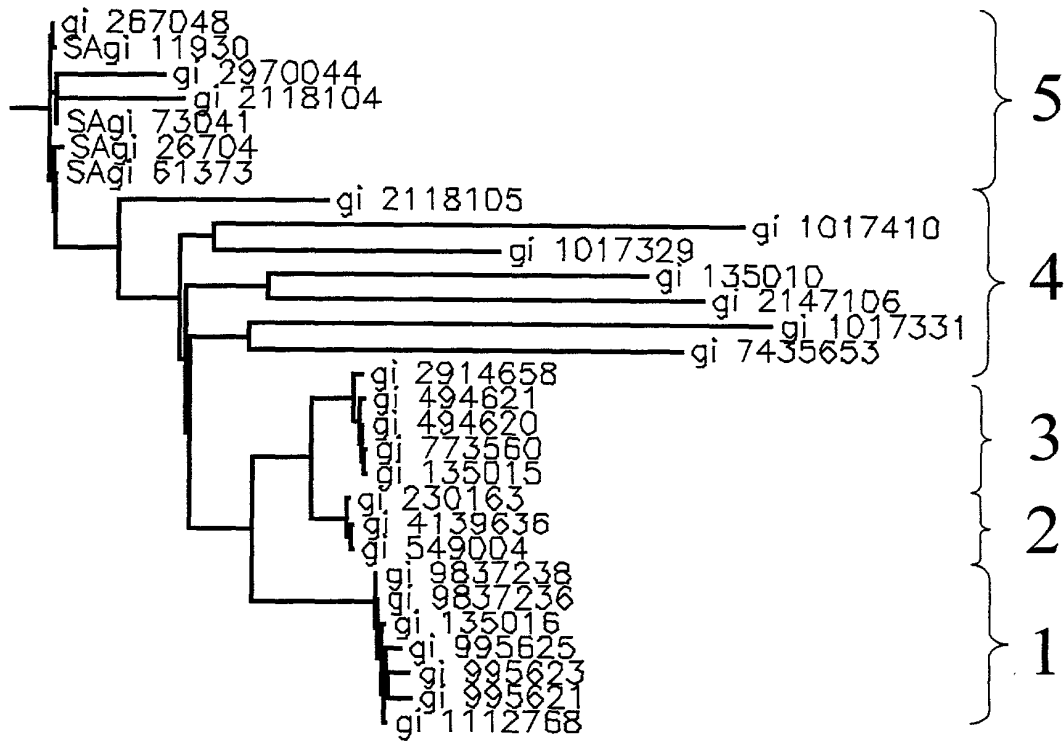


Figure 3

Amino Acid Sequence Alignments for 29 Subtilisin Carlsberg Related Proteins

SAgi 11930	-----M	KKPLGKIVAS	TALLISVAFS	SS-----	-----
gi 267048	-----	-----	-----	-----	-----
SAgi 73041	-----	-----	-----	-----	-----
SAgi 61373	-----	-----	-----	-----	-----
SAgi 26704	-----	-----	-----	-----	-----
gi 2970044	-----M	NKKMGKIVAG	TALIISVAFS	SS-----	-----
gi 2118104	-----M	KKLFTKVVAS	AALLLSISLT	AT-----	-----
gi 2118105	MNLQKIRSAL	KVKQSALVSS	LTILFLIMLV	G-----	-----
gi 1112768	-----MMRK	KSFWLGMLTA	FMLVFTMAFS	DS-----	-----
gi 135016	-----MMRK	KSFWLGMLTA	FMLVFTMAFS	DS-----	-----
gi 9837236	-----MMRK	KSFWLGMLTA	LMLVFTMAFS	DS-----	-----
gi 995621	-----MMRK	KSFWLGMLTA	FMLVFTMAFS	DS-----	-----
gi 995623	-----MMRK	KSFWLGMLTA	LMLVFTMAFS	DS-----	-----
gi 995625	-----MMRK	KSFWFGMLTA	FMLVFTMEFS	DS-----	-----
gi 9837238	-----	-----	-----	-----	-----
gi 549004	-----MRS	KKLWISLLFA	LTLIFTMAF-	SN-----	-----
gi 4139636	-----	-----	-----	-----	-----
gi 230163	-----	-----	-----	-----	-----
gi 135015	-----MRG	KKVWISLLFA	LALIFTMAFG	ST-----	-----
gi 773560	-----	---MISLLFA	LALIFTMAFG	ST-----	-----
gi 494620	-----	-----	-----	-----	-----
gi 494621	-----	-----	-----	-----	-----
gi 2914658	-----	-----	-----	-----	-----
gi 1017329	-----	MKRRVHVLIM	TILMIVLATG	TA-----	-----
gi 2147106	---MKKFKR	KGRLLDEKHE	MAIFFLFLLV	IL-----	-----
gi 135010	-----M	KNMSCKLVVS	VTLFFSFLTI	GP-----	-----
gi 7435653	---MVAVVTG	VIQVGTKIAA	IAIALIFILP	LF-----	-----
gi 1017410	-----MKT	MKTLVIVIGV	LALLFIVAIG	HVRDQDQALI	QTKEIPKTLE
gi 1017331	-----MNKR	LKRWSAIMSI	VLLVNLLVPV	GT-----	-----

[illegible]

Figure 4C

LIGFNS--D-	-----	KAKGLIQNAG	G-----	-----
IVGFKS--G-	-----V	KTAS--VKKD	I IKESGG--	-----
IVGFKS--G-	-----V	KTAS--VKKD	I IKESGG--	-----
IVGFKS--G-	-----V	KTAS--VKKD	I IKESGG--	-----
IVGFKS--G-	-----V	KTAS--VKKD	I IKESGG--	-----
IVGFKS--G-	-----V	KTAS--VKKD	I IKESGG--	-----
FVGFKS--G-	-----V	KTAS--VKKD	I IKESGG--	-----
-----	-----	-----	-----	-----
IVGFKQ--T-	-----M	SAMSSAKKKD	VI SEKGG--	-----
-----	-----	-----	-----	-----
-----	-----	-----	-----	-----
IVGFKQ--T-	-----M	STMSAAKKKD	VI SEKGG--	-----
IVGFKQ--T-	-----M	STMSAAKKKD	VI SEKGG--	-----
-----	-----	-----	-----	-----
-----	-----	-----	-----	-----
LVGFKN--E-	-----A	AVQAFSNNVT	TS-----	-----
MILFRH----	-----H	IDDGILKKYD	I-----	-----
IVVYKN----	-----K	AGKETILDSD	A-----	-----
VVIKINPE----	-----E	FNPKAVEALQ	G-----	-----
MLIGESTDDG	RL LIGELNLE	FVKKYVKDIA	AVADTNGNFF	IGGDNPDVSW
IVTYKD----	-----V	VSESPDSRLS	VY-----	-----
-----	-----	-----	-----	-----
-----	-----	-----	-----	-----
-----	-----	-----	-----	-----
-----	-----	-----	-----	-----
-----	-----	-----	-----	-----
EEEVEIELLH	EFETIPVLSV	ELSPED----	-----	-----
-----	-----	-----	-----	-----
-----	-----	-----	-----	-----
-----	-----	-----	-----	-----
-----	-----	-----	-----	-----
VEDVEIDLLH	EFDFIPVLSV	ELDPQD----	-----	-----
DESIEMELLY	EFEDIPVVS	ELSPED----	-----	-----
-----EIIH	EYTEFFVIYA	ELPEAA----	-----	-----
-----KVDK	QFRIINAACA	KLDKEA----	-----	-----
-----KVDK	QFRIINAACA	KLDKEA----	-----	-----
-----KVDK	QFRIINAACA	KLDKEA----	-----	-----
-----KVDK	QFRIINAACA	KLDKEA----	-----	-----
-----KVDK	QFRIINAGKA	KLDKEA----	-----	-----
-----KVDK	QFRIINAACA	TLDKEA----	-----	-----
-----	--RIINAACA	KLDKEA----	-----	-----
-----KVQK	QFKYVNAAAA	TLDEKA----	-----	-----
-----	-----	-----	-----	-----
-----	-----	-----	-----	-----
-----KVQK	QFKYVDAASA	TLNEKA----	-----	-----
-----KVQK	QFKYVDAASA	TLNEKA----	-----	-----
-----	-----	-----	-----	-----
-----	-----	-----	-----	-----
-----AVEVQH	EYENLPVIVS	ELSTEV----	-----	-----
-----HAQK	KYETIPTVLA	ELNKSQ----	-----	-----
-----DVEQ	QYKHLPAVAV	TADQET----	-----	-----
-----KVIY	VADLAPVAII	SIPGKA----	-----	-----
QDQDERATQL	TSETVPGLGW	DIHVQSEGQE	EEGPAYHEHQ	AVIRFKPNRD
-----ENEQ	TMKTLPIKTM	TVPVSE----	-----	-----

FIG. 4C

Figure 4D

-----V	DALELDPAIS	YIE--EDA EV	TTM-----	-----A QSV
-----	-----	-----	-----	-----A QSV
-----	-----	-----	-----	-----A QSV
-----	-----	-----	-----	-----A QSV
-----	-----	-----	-----	-----A QSV
-----V	EALDPAIS	YIE--EDA EV	TT-----	-----M QTV
-----V	KDLEKDPSIT	YIE--EDIEV	TIT-----	-----N QVT
-----V	SGLKNNPHID	FIE--ENEEV	EI-----	-----A QTV
-----L	KEVKNDPDVA	YVE--EDHVA	HAL-----	-----A QTV
-----L	KEVKNDPDVA	YVE--EDHVA	HAL-----	-----A QTV
-----L	EEVKNDPDVA	YVE--EDHVA	HAL-----	-----A QTV
-----L	KEVKNDPDVA	YVE--EDHVG	HGL-----	-----G QTV
-----L	KEVKNDPDVA	YVE--EDHVA	HVL-----	-----G QTV
-----L	KEVKNDPDVA	YVE--EDHVA	HAL-----	-----G QTV
-----L	EEVKNDPDVA	YVE--EDHVA	HAL-----	-----A QTV
-----V	KELKKDPSVA	YVE--EDHIA	HEY-----	-----A QSV
-----	-----	-----	-----	-----A QSV
-----	-----	-----	-----	-----A QSV
-----V	KELKKDPSVA	YVE--EDHVA	HAY-----	-----A QSV
-----V	KELKKDPSVA	YVE--EDHVA	HAY-----	-----A QSV
-----	-----	-----	-----	-----A QSV
-----	-----	-----	-----	-----A QSV
-----	-----	-----	-----	-----A QSV
-----A	QLENDPSVE	FIE--KNERV	YL-----	-----D PLV
-----V	DKLRSEPEIA	KVQANKTYKV	QS-----	-----Q IE
-----V	KELKQDPDIL	YVENNVSFTA	ADSTDFKVLS	DGTDTS DNFE
-----V	GLLSKLPGVV	SVSE DGVVQA	MAKPPWAGGG	NKS-QPAEVL
PAAWFATNPY	RVVEEAPFFF	VIESPNQTTV	EIVEALSR--	DYDLDFAEPN
-----V	ERLKEDPNVV	SVSLDQPLQL	MSDTR-----	-----ELGEH
PWGISRVOAP	AAHNRGLT--	-----	-----GS	G---VKVAVL
PWGISRVOAP	AAHNRGLT--	-----	-----GS	G---VKVAVL
PWGISRVOAP	AAHNRGLT--	-----	-----GS	G---VKVAVL
PWGISRVOAP	AAHNRGLT--	-----	-----GS	G---VKVAVL
PWGISRVOAP	AAHNRGLT--	-----	-----GS	G---VKVAVL
PWGIRVOAP	IAQSRGFT--	-----	-----GT	G---VRVAVL
PWGITRVOAP	TAWTRGYT--	-----	-----GT	G---VRVAVL
PWGIPYIYSD	VVHRQGYF--	-----	-----GN	G---VKVAVL
PYGIPLIKAD	KVQAQGFK--	-----	-----GA	N---VKVAVL
PYGIPLIKAD	KVQAQGFK--	-----	-----GA	N---VKVAVL
PYGIPLIKAD	KVQAQGYK--	-----	-----GA	N---VKVAVL
PYGIPLIKAD	KVQAQGFK--	-----	-----GA	N---VKVAVL
PYGIPLIKAD	KVQAQGFK--	-----	-----GA	N---VKVAVL
PYGIPLIKAD	KVQAQGFK--	-----	-----GA	N---VKVAVL
PYGIPLIKAD	KVQAQGYK--	-----	-----GA	N---VKVAVL
PYGISQIKAP	ALHSQGYT--	-----	-----GS	N---VKVAVI
PYGISQIKAP	ALHSQGYT--	-----	-----GS	N---VKVAVI
PYGISQIKAP	ALHSQGYT--	-----	-----GS	N---VKVAVI
PYGVSQIKAP	ALHSQGYT--	-----	-----GS	N---VKVAVI
PYGVSQIKAP	ALHSQGYT--	-----	-----GS	N---VKVAVI
PYGVSQIKAP	ALHSQGYT--	-----	-----GS	N---VKVAVI

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Figure 4E

PYGVSQIKAP ALHSQGYT-- -----GS N---VKVAVI
PYGVSQIKAP ALHSQGYC-- -----GS N---VKVAVI
MNNIQETDIP KLEERMKR-- -----GD G---VKIAVL
TWGYKKIYED SQYRSPFT-- -----GK G---VKVAVI
QWNLEPIQVK QAWKAGLT-- -----GK N---IKIAVI
PWGVDYIDAE LVWPDGVTGW VDV-----NGD GDGEIEVAVI
YRFTKQIQAP VTPNDEFFKE YQWNLQQIDI EEGWSLASGE N---VKIAIL
DWNNDMVKAF DAWDDGYT-- -----GK G---VKVAVF

DTGIST-HPD LN--IRGGAS FVPGEP-STQ -DGNGHGTHV AGTIAALNNS
DTGIST-HPD LN--IRGGAS FVPGEP-STQ -DGNGHGTHV AGTIAALNNS
DTGIST-HPD LN--IRGGAS FVPGEP-STQ -DGNGHGTHV AGTIAALNNS
DTGIST-HPD LN--IRGGAS FVPGEP-STQ -DGNGHGTHV AGTIAALDNS
DTGIST-HPD LN--IRGGAS FVPGEP-STQ -DGNGHGTHV AGTIAALNNS
DTGISN-HAD LR--IRGGAS FVPGEP-NIS -DGNGHGTHV AGTIAALNNS
DTGIST-HPD LN--IRGGVS FVPGEP-SYQ -DGNGHGTHV AGTIAALNNS
DTGVAP-HPD LH--IRGGVS FISTEN-TYV -DYNHGTHV AGTVAALNNS
DTGIQASHPD LN--VVGGAS FVAGEA-YNT -DGNGHGTHV AGTVAALDNT
DTGIQASHPD LN--VVGGAS FVAGEA-YNT -DGNGHGTHV AGTVAALDNT
DTGIQASHPD LN--VVGGAS FVAGEA-YNT -DGNGHGTHV AGTVAALDNT
DTGIQASHPD LN--VVGGAS FVAGEA-YNT -DGNGHGTHV AGTVAALDNT
DTGIQASHPD LN--VVGGAS FVAGEA-YNT -DGNGHGTHV AGTVAALDNT
DTGIQASHPD LN--VVGGAS FVAGEA-YNT -DGNGHGTHV AGTVAALDNT
DSGIDSSHPD LN--VRGGAS FVPSET-NPY QDGSSHGTHV AGTIAALNNS
DSGIDSSHPD LN--VRGGAS FVPSET-NPY QDGSSHGTHV AGTIAALNNS
DSGIDSSHPD LN--VRGGAS FVPSET-NPY QDGSSHGTHV AGTIAALNNS
DSGIDSSHPD LK--VAGGAS MVPSET-NPF QDNNSHGTHV AGTVAALNNS
DSGIDSSHPD LK--VAGGAS MVPSET-NPF QDNNSHGTHV AGTVAALNNS
DSGIDSSHPD LK--VAGGAS MVPSET-NPF QDNNSHGTHV AGTVAALNNS
DSGIDSSHPD LK--VAGGAS MVPSET-NPF QDNNSHGTHV AGTVAALNNS
DSGIDSSHPD LK--VAGGAS FVPSET-NPF QDNNSHGTHV AGTVAALNNS
DTGIAS-HDD LH--VIDGVS FVSVEP-FYR -DLNGHGTHV AGTIAAQEND
DTGIASNHPD LK--VKGGTC VIRSDCGKGY NDDNGHGTHV AGIIGALDNG
DSGISP-HDD LS--IAGGYS AVSYTS--SY KDDNGHGTHV AGIIGAKHNG
DTGVDKDHPD LAGNIVWGIS VLNGRISSNY QDRNGHGTHV TGTVAALDND
DTGVDPNHPD IKDKIVNGYN AVEGNN--NF ADKHGHGTHV AGVAAAVTNN
DTGFDG-HQD IT--YAGGHS VFEGEP--YT HDHHGHGTHV AGIIGAREGT

I-GVLGVAPN AELYAVKVLG ASGSGSVSSI AQGLEWAGNN G-----MH--
I-GVLGVAPS AELYAVKVLG ASGSGSVSSI AQGLEWAGNN G-----MH--
I-GVLGVAPS AELYAVKVLG ASGSGSVSSI AQGLEWAGNN G-----MH--
I-GVLGVAPS AELYAVKVLG ASGSGAISSI AQGLEWAGNN G-----MH--
I-GVLGVAPS AELYAVKVLG ADGRGAISSI AQGLEWAGNN G-----MH--
I-GVLGVAPN VDLYGVKVLG ASGSGSISGI AQGLQWAANN G-----MH--
I-GVVGVPAPN AELYAVKVLG ANGSGSVSSI AQGLQWTAQN N-----IH--
Y-GVLGVAPG AELYAVKVLD RNSGSGHASI AQGIEWAMNN G-----MD--
T-GVLGVAPS VSLYAVKVLN SSGSGSYSGI VSGIEWATTN G-----MD--
T-GVLGVAPS VSLYAVKVLN SSGSGTYSGI VSGIEWATTN G-----MD--
T-GVLGVAPN VSLYAVKVLN SSGSGSYSGI VSGIEWATTN G-----MD--
T-GVLGVAPS VSLYAVKVLN SSGSGSYSGI VSGIEWATTN G-----MD--
T-GVLGVAPS VSLYAVKVLN SSGSGSYSAI VSGIEWATTT G-----MD--

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T-GVLGVAPS VSLFAVKVLN SSGSGSYSGI VSGIEWATTN G-----MD--
T-GVLGVAPN VSLYAVKVLN SSGSGSYSGI VSGIEWATTN G-----MD--
I-GVLGVAPS ASLYAVKVLD STGSGQYSWI INGIEWAISN N-----MD--
I-GVLGVSPS ASLYAVKVLD STGSGQYSWI INGIEWAISN N-----MD--
I-GVLGVAPS ASLYAVKVLD STGSGQYSWI INGIEWAISN N-----MD--
I-GVLGVAPS ASLYAVKVLG ADGSGQYSWI INGIEWAIAN N-----MD--
I-GVLGVAPS ASLYAVKVLG ADGSGQYSWI INGIEWAIAN N-----MD--
I-GVLGVAPS ASLYAVKVLG ADGSGQYSWI INGIEWAIAN N-----MD--
-----APS ASLYAVKVLG ADGSGQYSWI INGIEWAIAN N-----MD--
I-GVLGVAPC ASLYAVKVLG ADGSGQYSWI INGIEWAIAN N-----MD--
E-ASTGIAPN VELYAVKVLN GLGAGSIASI TNGVDWAIAN D-----MD--
V-GIVGVAPD ADLYAVKAFD EFGEGSTSSI TAGVDWAIQH H-----MD--
Y-GIDGIAPE AQIYAVKALD QNGSGDLQSL LQIDWSIAN R-----MD--
I-GVIGVAHS VEIYAVKALG NGGYGSWSDL IIAIDLAVKG PDGVIDADGD
VTGIAGISWK SEILPVKVLN DNGEGSSFEV AKGIYWATDH G-----AK--
L--HQGIAPD VQLYGVKVFS QEKGNTSDL IAGIDWAIQE G-----MD--

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-----VANLSLG SPSPSATLEQ AVNSATSRGV LVVAASGNSG
-----VANLSLG SPSPSATLEQ AVNSATSRGV LVVAASGNSG
-----VANLSLG SPSPSATLEQ AVNSATSRGV LVVAASGNSG
-----VANLSLG SPSPSATLEQ AVNSATSRGV LVVAASGNSG
-----VANLSLG SPSPSATLEQ AVNSATSRGV LVVAASGNSG
-----IANMSLG SSAGSATMEQ AVNQATASGV LVVAASGNSG
-----VANLSLG SPVGSQTLEL AVNQATNAGV LVVAATGNNG
-----IANMSLG SPSPSTTLQL AADRARNAGV LLIGAAGNSG
-----VINMSLG GASGSTAMKQ AVDNAYAKGV VVVAAGNSG
-----VINMSLG GPSGSTAMKQ AVDNAYARGV VVVAAGNSG
-----VINMSLG GPSGSTAMKQ AVDNAYARGV VVVAAGNSG
-----VINMSLG GPSGSTAMKQ AVDNAYARGV VVVAAGNSG
-----VINMSLG GASGSTAMKQ AVDNAYARGV VVVAAGNSG
-----VINMSLG GASVSTAMKQ AVDHAYARGA VVVSAGNSG
-----VINMSLG GPSGSTAMKQ AVDNAYSKGV VPVAAAGNSG
-----VINMSLG GASGSTAMKQ AVDNAYARGV VVVAAGNSG
-----VINMSLG GPTGSTALKT VVDKAVSSGI VVAAAAGNEG
-----VINMSLG GPTGSTALKT VVDKAVSSGI VVAAAAGNEG
-----VINMSLG GPTGSTALKT VVDKAVSSGI VVAAAAGNEG
-----VINMSLG GPSGSAALKA AVDKAVASGV VVVAAGNEG
-----VINMSLG GPSGSAALKA AVDKAVASGV VVVAAGNEG
-----VINMSLG GPSGSAALKA AVDKAVASGV VVVAAGNEG
-----VINMSLG GPSGSAALKA AVDKAVASGV VVVAAGNEG
-----VINMSLG GPSGSAALKA AVDKAVASGV VVVAAGNEG
-----IINMSLG TNTDSEALQR AVERAHDHGI LIIAAAGNSG
-----IINLSVT TVSDDPVLKS ALDKAYNAGI LITAAANDGD
-----IIVNMSLG TTSDSKILHD AVNKAYEQGV LLVAASGN-D
GVVAGDPDDD APEVISMSLG GSSPPPELHD VIKAAYNLGI TIVAAAGN-D
-----VINMSLG DYYHSDALRD AVKYAYDHDV VLIAASGNDN
-----IINMSLG YTNEVPAVHT AIKQAVAQEI LVVAASGNNG

```

```
--AG---SIS YPARYANAMA VGATDQNNNR ASFSQYGAGL DIVAPGVNVQ
--AG---SIS YPARYANAMA VGATDQNNNR ASFSQYGAGL DIVAPGVNVQ
--AG---SIS YPARYANAMA VGATDQNNNR ASFSQYGAGL DIVAPGVNVQ
--AG---SIS YPARYANAMA VGATDQNNNR ASFSQYGAGL DIVAPGVNVQ
--AS---SIS YPARYANAMA VGATDQNNNR ASFSQYGAGL DIVAPGVNVQ
```

--AG---	NVG	FPARYANAMA	VGATDQNNNR	ASFSQYGAGL	DIVAPGVGVQ
--SG---	TVS	YPARYANALA	VGATDQNNNR	ASFSQYGTGL	NIVAPGVGIQ
QQGS-	NNMG	YPARYASVMA	VGAVDQNGNR	ANFSSYGSEL	EIMAPGVNIN
S-SGNTNTIG		YPAKYDSVIA	VGAVDSNSNR	ASFSSVGAEL	EVMAPGAGVY
S-SGNTNTIG		YPAKYDSVIA	VGAVDSNSNR	ASFSSVGAEL	EVMAPGAGVY
S-SGNTNTIG		YPAKYDSVIA	VGAVDSNSNR	ASFSSVGAEL	EVMAPGAGVY
S-SGNTNTIG		YPAKCDVIP	VGGEDSNSNR	SSFSSVGAEL	EVMAPVSGVY
S-SGNTNTIG		YPAKYDSVIA	VGAVDSNSNR	ASFSSVGAEL	EVMAPGAGVY
S-SGYTNTIG		YPAKYDSVIA	VGAVDSNSNR	ASFSSVGAEL	EVMAPGAGVY
S-SGNTNTIG		YPAKYDSVIA	VGAVDSNSNR	ASFSSVGAEL	EVMAPGAGVY
S-SGSTSTVG		YPAKYPSTIA	VGAVNSSNQ	ASFSSVGSSEL	DVMAPGVSIQ
S-SGSTSTVG		YPAKYPSTIA	VGAVNSSNQ	ASFSSAGSEL	DVMAPGVSIQ
S-SGSTSTVG		YPAKYPSTIA	VGAVNSSNQ	ASFSSAGSEL	DVMAPGVSIQ
T-SGSSSTVG		YPGKYPSVIA	VGAVDSSNQ	ASFSSVGPEL	DVMAPGVSIQ
T-SGSSSTVG		YPGKYPSVIA	VGAVDSSNQ	ASFSSVGPEL	DVMAPGVSIQ
T-SGSSSTVG		YPGKYPSVIA	VGAVDSSNQ	ASFSSVGPEL	DVMAPGVSIQ
T-SGSSSTVG		YPGKYPSVIA	VGAVDSSNQ	ASFSSVGPEL	DVMAPGVSIQ
T-SGSSSTVG		YPGKYPSVIA	VGAVDSSNQ	ASFSSVGPEL	DVMAPGVSIQ
E-ADKQHTID		YPARYDSVVA	VGAVDGNNER	ASFSSYGEQL	EIMAPGVEIH
S-VGSKNTIL		YPAKYSSVIA	VGSVDSRLQ	LPFSATGPEL	EIVAPGOYVF
---GNGKPVN		YPAAYSSVVA	VSATNEKNQL	ASFSTTGDEV	EFSAPGTNIT
----GADSPS		YPAAYPEVIA	VGAIENGNV	PSWSNRNPE-	-VAAPGVNIL
-----VEDPL		YPAIYEEVLT	VAAVDDTRNR	AFFSNFGKHI	DVTAPGEHIP
KADGSGETIE		YPAKYDEVIA	VASVDKEMKR	TNTSATGVEN	ELAAPGHLIG
STYPGSTYAS	-----L	NGTSMATPHV	AGAAALVKQK	-----NP	
STYPGSTYAS	-----L	NGTSMATPHV	AGAAALVKQK	-----NP	
STYPGSTYAS	-----L	NGTSMATPHV	AGVAALVKQK	-----NP	
STYPGSTYAS	-----L	NGTXMATPHV	AGAAALVKQK	-----NP	
STYPGSTYAS	-----L	NGTSMATPHV	AGAAALVKQK	-----NP	
STVPGNGYSS	-----F	NGTSMATPHV	AGVAALVKQK	-----NP	
STYPGNRYAS	-----L	SGTSMATPHV	AGVAALVKQK	-----NP	
STYLNNGYRS	-----L	NGTSMASPHV	AGVAALVKQK	-----HP	
STYPTNTYAT	-----L	NGTSMASPHV	AGAAALILSK	-----HP	
STYPTSTYAT	-----L	NGTSMASPHV	AGAAALILSK	-----HP	
STYPTSTYAT	-----L	NGTSMASPHV	AGAAALILSK	-----HP	
STYPTNTYTT	-----L	NGTSMASPHV	AGTSALILSK	-----HP	
STYPTNTYAT	-----L	NGTSMASPHV	AGAAALILSK	-----HP	
STYPTNTYAT	-----L	NGTSMASPHV	AGAAALILSK	-----HP	
STYPTSTYAT	-----L	NGTSMASPHV	AGAAALILSK	-----HP	
STLPGGTYGA	-----Y	NGTSMATPHV	AGAAALILSK	-----HP	
STLPGGTYGA	-----Y	NGTCMATPHV	AGAAALILSK	-----HP	
STLPGGTYGA	-----Y	NGTSMATPHV	AGAAALILSK	-----HP	
STLPGNKYGA	-----Y	NGTSMASPHV	AGAAALILSK	-----HP	
STLPGNKYGA	-----Y	NGTSMASPHV	AGAAALILSK	-----HP	
STLPGNKYGA	-----Y	SGTCMASPHV	AGAAALILSK	-----HP	
STLPGNKYGA	-----K	SGTCMASPHV	AGAAALILSK	-----HP	
STLPGNKYGA	-----K	SGTSMASPHV	AGAAALILSK	-----HP	
STFLFNRYER	-----L	SGTSMASPHV	TGAAALIKSN	-----NE	
STFFINLDTT	DGKKDGYTAL	SGTSMALPHL	YTGALAATLK	-----TS	
STYLNQYYAT	-G-----	SGTSQATPHA	AAMFALLKQR	-----DB	
STYPPDDTYEE	-----L	SGTSMATPHV	SGTVALIOAA	RLAAGLPLLF	

Figure 4H

SFLFPDNQYTV	-----M	SGTSMASPHA	AGLAGLIRSL	-----RP
GLAPGNKYVF	-----M	SGTSQATPHV	TSLAAILMGK	-----HP
-----SWSNV	QIRNHLKNTA	TSLGSTNL--	-YGSGLVN--	-----
-----SWSNV	QIRNHLKNTA	TSLGSTNL--	-YGSGLVN--	-----
-----SWSNV	QIRNHLKNTA	TGLGNTNL--	-YGSGLVN--	-----
-----SWSNV	QIRNHLKNTA	TSLGSTNL--	-YGSGLVN--	-----
-----SWSNV	QIRNHLKNTA	TSLGSTNL--	-YGSGLVN--	-----
-----SWSNV	QIRNHLKNTA	TNLGNTNQ--	-FGSGLVN--	-----
-----SWSNT	QIRQHLTSTA	TSLGNSNQ--	-FGSGLVN--	-----
-----HLTAA	QIRNRMNQTA	IPLGNSTY--	-YGNGLVD--	-----
-----NLSAS	QVRNRLSSTA	TYLGSSFY--	-YGKGLIN--	-----
-----NLSAS	QVRNRLSSTA	TYLGSSFY--	-YGKGLIN--	-----
-----NLSAS	QVRNRLSSTA	TYLGSSFY--	-YGKGLIN--	-----
-----NLSAS	QVRNRLSRTA	TYLGSSFY--	-YGKGLIN--	-----
-----NLSAS	QVRTRLRSTA	TYLGSSFS--	-YGRGLIN--	-----
-----NLSAS	QVRNRLSSTA	TYLGSSFY--	-YGKGLIN--	-----
-----NLSAS	QVRNRLSSTA	TYLGSSFY--	-YGKGLIN--	-----
-----TWTNA	QVRDRLESTA	TYLGNSFY--	-YGKGLIN--	-----
-----TWTNA	QVRDRLESTA	TYLGNSFY--	-YGKGLIN--	-----
-----TWTNA	QVRDRLESTA	TYLGSSFY--	-YGKGLIN--	-----
-----NWTNT	QVRSSLENTT	TKLGDSFY--	-YGKGLIN--	-----
-----NWTNT	QVRSSLENTT	TKLGDSFY--	-YGKGLIN--	-----
-----NWTNT	QVRSSLENTT	TKLGDSFY--	-YGKGLIN--	-----
-----NWTNT	QVRSSLENTT	TKLGDSFY--	-YGKGLIN--	-----
-----NWTNT	QVRSSLENTT	TKLGDSFY--	-YGKGLIN--	-----
-----ELTNE	QIRKRLNTTA	TPLGNPFY--	-YGHGLLN--	-----
--IKTNRPAG	NPQNTSDQNA	KDLGTAGKDS	LYGYGLVQIK	TFQP-----
--AETNVQL-	--REEMRKNI	VDLGTAGRDO	QFGYGLIQYK	AQAT-----
PGSESDTTPD	TVRGVLHTTA	TDAGDPGYDS	LYGYGIID--	-----
-----DLSNQ	EVM DIMK KTA	KDLGPKGHDV	YYGHGEID--	-----
-----ELSSQ	QIRALLVEQS	LDLGSEGHDR	LYGYGLAQYV	SSTPPDEEEN
-----AEAATR	-----	-----	-----	-----
-----AEAATR	-----	-----	-----	-----
-----AEAATR	-----	-----	-----	-----
-----AEAATR	-----	-----	-----	-----
-----AEAATR	-----	-----	-----	-----
-----AEAATR	-----	-----	-----	-----
-----AEYAAQ	-----	-----	-----	-----
-----V-----	-----	-----	-----	-----
-----VEAAAQ	-----	-----	-----	-----
-----VEAAAQ	-----	-----	-----	-----
-----VEAAAQ	-----	-----	-----	-----
-----VEAAAQ	-----	-----	-----	-----
-----VEAAAQ	-----	-----	-----	-----
-----VQAAAQ	-----	-----	-----	-----
-----VQAAAQ	-----	-----	-----	-----
-----VQAAAQ	-----	-----	-----	-----
-----VQAAAQ	-----	-----	-----	-----

Figure 4I

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-----VQAAAQ-----
-----VQAAAQ-----
-----VQAAAQ-----
-----VQAAAQ-----
-----VDAALD-----
--TLSSDMAV KAVK----- ADNGLWS--- ---SRS-ISP IPFK--SLAE
--DSAYAAAE QAVK----- KAEQTKAQID INKARELISQ LPNSDAKTAL
----AYDAVQ TAVS----- S-----
----IEAALK AIRT----- S-----
EESPAENPOE QPSDGKENEG SEDQGSTPPD EEENEESPAE DPQEQPSDGK

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[illegible][illegible]

Figure 4J

QTAINKLPNG	TDKKNLQKRL	DQVKRYIASK	QAKDKVAKAE	KSKKKTDVDS
-----	-----	-----	-----	-----
ENEESPAEDP	QEQPSDGKEN	EESKNPDSAP	PAGEKEGKQT	ARVQVKPVNL
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AQSAIGKLPA	SSEKTSLQKR	LNVKSTNLK	TAQQSVSAAE	KKSTDAN---
-----	-----	-----	-----	-----
GGVAIVSNAD	VASVLNGLTL	VVFDFSALDD	LTRLALTADQ	VKELKDRGIT

[illegible]

Figure 4K

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-----AAKA QSAVNQLQAG
-----
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LVIAKHDLEL VIPHGVEKAG DUVIEFERVV GKGIPYAGQA KSTVYQFKII

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[illegible]

Figure 4L

KDKTALQKRL DKVKKKVAAA EAKKVETAKA KVKKAEKDKT KKS KTS AQSA

QNGQQVRHFD EEIEMGFRVD QEKNVNNLKI YYWNESLNEW EKIGGNYQEG

VNQLKASNEK	TKLQKRLNAV	KPKK-----		
FIVARTNHFS	TYTVFDSAVF	EETKSGTPIS	GGKTNGNSTT	EGTTNRGTSK

VNQLKASNEK TKLQKRLNAV KPKK-----

FIVARTNHFS TYTVFDSA VF EETKSGTPIS GGKTNGNSTT EGTNNGTSK

Figure 4M

NGTGSEPQAE ESNEQNNKDG TLPKTATNLY NSLAIGALLL LIGFVLLRKS

KRRIVE